

### **Abstract**

An apparatus and method provide for curvature corrected temperature variations in a band-gap reference circuit. The apparatus includes a band-gap cell, an IPTAT circuit, a resistor, and a feedback circuit. The band-gap cell is arranged to  
5 provide a band-gap voltage. The resistor circuit is coupled to both the band-gap cell and the IPTAT circuit. The feedback circuit is arranged to selectively activate the IPTAT circuit such that an additional correction factor is added to the temperature response of the band-gap cell to provide a second order curve. The IPTAT circuit can be implemented as a simple transistor that is responsive to changes in absolute temperature.  
10 The second-order temperature corrected curves have improved operating temperature ranges with minimal voltage variations when compared to a conventional band-gap circuit.

Customer No. 23552